REMARKS

Claims 1-23 constitute the pending claims in the present application prior to this Reply. Claims 10-15 are withdrawn from consideration. Claims 2, 5 and 12 have been canceled, without prejudice. Claim 1 has been amended. The claim amendments are fully supported by the specification. No new matter has been introduced. In particular, support for the amendment to claim 1 can be found, for example, in claims 2 and 5 as originally pending.

Amendment or cancellation of claims should in no way be construed as an acquiescence to any of the rejections. The amendments to the claims are being made solely to expedite prosecution of the present application. Applicants reserve the option to further prosecute the same or similar claims in the instant or in a subsequent patent application.

Applicants respectfully request reconsideration in view of the following remarks. Issues raised by the Office Action will be addressed below in the order they appear in the prior Office Action.

Claim Rejections Under 35 U.S.C. §112, First Paragraph - Enablement

Claims 1-9 and 19 were rejected under 35 U.S.C. §112, first paragraph, for purposes of enablement. The rejection is respectfully traversed.

As an initial matter, Applicants note that the rejection does not seem to correlate to the claims as currently pending. The Office Action states that "the specification, while being enabling for inhibiting the interaction of a C-type lectin on a dendritic cell *in vitro* wherein the lectin is SEQ ID# 2 and the antibody binds to SEQ ID# 2, does not reasonably provide enablement for 80% or 90% or more identity of the lectin or of antibodies that bind to the lectin." However, no pending claims recite the limitation "80% or 90% or more identity." Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection. If the Office maintains the rejection, Applicants request clarification as to the basis of the rejection and its correlation to the pending claims.

The Office Action further states that the "specification provides no guidance regarding practice of the claimed method," because the "direction is limited to a cell culture assay" and there is "no evidence that shows any correlation with *in vivo* efficacy." However, the Office has not provided any evidence that one of skill in the art would reasonably doubt the enablement of the pending claims. Rather, the Office Action has merely stated that "[o]ne skilled in the art would not associate successful *in vitro* testing results with successful *in vivo* treatment due to the high level of unpredictability in the art." Such a statement is not sufficient to meet the Office's burden in challenging the enablement of the instant claims.

The Office relies on *Ex parte Balzarini* to support the position that *in vitro* testing "is not predictive of *in vivo* effectiveness." Applicants respectfully submit that the Office's reliance on *Ex parte Balzarini* is inappropriate. First, in *Balzarini*, the Examiner provided ample evidence (several pre-filing and post-filing publications) to show that successful *in vitro* testing would not be a reasonable basis for predicting *in vivo* efficacy. In contrast, here, the Office provides no specific evidence to show that Applicants' *in vitro* testing results do not correlate with *in vivo* efficacy. Second, in *Balzarini*, those of ordinary skill in the art had already recognized the unreliability of *in vitro* assays in the AIDS-treatment field. In contrast, here, there is no such evidence. In fact, even within the AIDS-treatment field, the holding of *Balzarini* is fact-specific, as the Board of Patent Appeals and Interference stated in *Ex parte Bodian*, 1995 WL 1696869:

> ***At best, Balzarini indicates what those skilled [in the] art would have believed in 1987 as to predictability from in vitro tests***. However, Balzarini does not create a per se rule of lack of utility for all AIDS-related inventions. In making a rejection for lack of utility it is the examiner's burden to provide evidence showing that those working in the art would not believe the objective truth of the stated utility at the time the application was filed. (emphasis added)

The Board noted that unlike *Balzarini*, the Examiner in *Bodian* provided no evidence to support the utility rejection and therefore the Examiner had not made a prima facie case for lack of *in vivo* utility. Similarly, in the present application, the Office can not rely on *Balzarini* to assert lack of enablement solely based on the reason that the art is unpredictable.

Furthermore, Applicants submit that *in vivo* efficacy data are not required to enable an *in vivo* use. In *Cross v. Iizuka*, 753 F.2d 1040 (Fed. Cir. 1985), the Federal Circuit noted that *in vitro* testing results are generally predictive of *in vivo* testing results:

> In vitro testing, in general, is relatively less complex, less time consuming, and less expensive than in vivo testing. Moreover, in vitro results with respect to the particular pharmacological activity ***are generally predictive of in vivo test results***, i.e., there is a reasonable correlation therebetween. Were this not so, the testing procedures of the pharmaceutical industry would not be as they are. Iizuka has not urged, and rightly so, that there is an invariable exact correlation between in vitro test results and in vivo test results. Rather, Iizuka's position is that successful in vitro testing for a particular pharmacological activity establishes a significant probability that in vivo testing for this particular pharmacological activity will be successful.
>
> ...
>
> ... based upon the relevant evidence as a whole, there is a reasonable correlation between the disclosed in vitro utility and an in vivo activity, and ***therefore a rigorous correlation is not necessary*** where the disclosure of pharmacological activity is reasonable based upon the probative evidence.

Id. at 1050 (emphasis added).

The instant application sets forth several examples and presents *in vitro* data derived from cell based assays demonstrating that the interaction between dendritic cells and T cells is mediated by an interaction between DC-SIGN on the surface of the dendritic cells and an ICAM receptor on the surface of the T cells. These assays are representative of what occurs *in vivo*, i.e., there are interactions between dendritic cells and T cells which modulate immune response (see e.g., page 19, lines 1-10 of the instant application). The application therefore teaches and enables reducing an immune response by inhibiting an interaction between a dendritic cell and a T cell. As the Federal Circuit stated in *Cross v. Iizuka*, a rigorous correlation is not necessary where the disclosure of pharmacological activity is reasonable based upon the probative evidence. Accordingly, a person of ordinary skill in the art, without undue experimentation or inventive skills, can make and use the claimed methods based on the *in vitro* data and other disclosure provided by the application.

The Office bears the initial burden of setting forth a reasonable explanation as to why it believes that the scope of protection provided by the claims is not enabled by the description provided in the specification of the application (see *In re Brana*, 51 F.3d 1560, 1566 (Fed. Cir.

1995); *In re Wright*, 999 F.2d 1557, 1561-1562 (Fed. Cir. 1993)). Additionally, the Office has the burden to provide reasons for a conclusion of lack of correlation for an *in vitro* or *in vivo* animal model (see MPEP 2164.02). This burden has not been met in this case. The Office has merely asserted that the level of unpredictability in the art is high and on this basis concludes that one skilled in the art would not associate *in vitro* efficacy with *in vivo* treatment. Nor does the Office provide any reasons to doubt that the *in vitro* data correlate with *in vivo* utility. Accordingly, the Office has not met its burden in challenging the enablement of the instant claims and therefore the rejection cannot stand and should be withdrawn.

For the reasons presented above, Applicants submit that the claims fully comply with the enablement requirement under 35 U.S.C. § 112, first paragraph. Reconsideration and withdrawal of this rejection are respectfully requested. If the Office wishes to maintain the rejection, Applicants note that the Office is required to include an explanation, sufficiently supported by the evidence, of why the specification fails to enable the claimed methods. In the absence of such evidence, Applicants note that the rejection is improper and cannot be maintained.

Claim Rejections Under 35 U.S.C. §102

Claims 1-9 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Curtis (WO93/01820). The Office Action states that Curtis "teaches inhibiting HIV infection by administering a compound that blocks binding of HIV to the receptor," and blocking infection would modulate an immune response. Applicants respectfully traverse the rejection.

The claims as currently pending are directed, at least in part, to methods for *reducing* an immune response by *inhibiting an interaction between a dendritic cell and a T cell* by administering a compound that binds DC-SIGN and reduces an interaction between a dendritic cell and a T cell. Curtis clearly fails to teach or suggest such methods. Curtis discloses that the primary basis for HIV induced immunosuppression is the depletion of the helper/inducer subset of T lymphocytes expressing the CD4 molecule (see Curtis at page 2, lines 13-15). Infection of CD4+ cells is initiated by the interaction of the CD4 molecule with the major HIV envelope glycoprotein gp120 (see Curtis at page 2, lines 24-25). However, it had been observed that CD4 antigen was unlikely to be

involved in the infection of brain-derived cells by HIV (see Curtis at page 3, lines 10-11). Therefore, the Curtis application demonstrated the presence of a non-CD4 receptor for gp120, called gp120r (now known to be DC-SIGN), and suggested methods for inhibiting HIV infection of cells such as brain and muscle which do not express high levels of CD4 using an inhibitor of gp120r (see Curtis at page 3, lines 16-18, and page 3, line 35 to page 4, line 3). However, Curtis fails to teach or suggest any methods beyond inhibition of HIV infection and clearly never suggests that the protein which he identified as an HIV receptor would have any additional utility. In particular, Curtis clearly fails to teach or suggest a method for *reducing* an immune response *by inhibiting an interaction between a dendritic cell and a T cell.* Curtis also fails to teach or suggest that a compound which binds to DC-SIGN would *reduce one or more interactions between a dendritic cell and a T cell.* Therefore, Curtis fails to anticipate the instant claims.

A claim is anticipated only if each and every element of the claim is found in a single prior art reference. The Curtis reference does not teach each and every element of claims 1, 3-4 and 6-9, as amended. Therefore, reconsideration and withdrawal of the rejection of the claims under 35 U.S.C. §102(b) is respectfully requested.

Double Patenting

Claims 1, 3, 4, 9, and 16-23 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting, as allegedly being unpatentable over claims 1-3, 8, and 15-23 of copending Application No. 10/625,204. The rejection is respectfully traversed.

Applicants submit that claims of copending Application No. 10/625,204 are directed, at least in part, to methods for *increasing* an immune response by administering a compound which binds to DC-SIGN and is *bound to an antigen.* In contrast, the claims of the instant application as currently pending are directed, at least in part, to methods for *reducing* an immune response by administering a compound that binds to DC-SIGN and *reduces an interaction between a dendritic cell and a T cell.* Accordingly, Applicants submit that the claims of the instant application are novel and non-obvious over the claims of co-pending Application No. 10/625,204. Reconsideration and withdrawal of the rejection is respectfully requested.

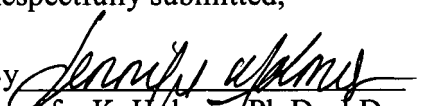
Applicants also wish to draw the Examiner's attention to the Notice of Allowance which was mailed on June 14, 2007 in association with copending Application No. 10/625,204.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that the pending claims are in condition for allowance. Early and favorable reconsideration is respectfully solicited. The Examiner may address any questions raised by this submission to the undersigned at 617-951-7000. Applicants believe no fee is due with this response. However, if a fee is due, please charge our **Deposit Account No. 18-1945**, under Order No. ALXN-P02-089 from which the undersigned is authorized to draw.

Dated: August 10, 2007

Respectfully submitted,

By 

Jennifer K. Holmes, Ph.D., J.D.
Registration No.: 46,778
FISH & NEAVE IP GROUP, ROPES & GRAY LLP
One International Place
Boston, Massachusetts 02110
(617) 951-7000
(617) 951-7050 (Fax)
Attorneys/Agents For Applicant